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That Was a Great Commercial, but What Were They Selling? Effects of Violence and Sex on Memory for Products in Television Commercials¹

BRAD J. BUSHMAN²

University of Michigan

and

VU University Amsterdam

College students ($N = 324$) watched a television program containing violence, sex, or no violence or sex. Each program contained 3 violent ads, 3 sexual ads, and 3 neutral ads. Participants were less likely to remember the advertised brands when the ads were embedded in a violent or sexual program than when the ads were embedded in a neutral program. Violent ads were the least memorable. This memory impairment occurred for both males and females, regardless of the content of the ads. If advertisers want viewers to remember advertised brands, they should think twice about sponsoring programs containing violence and sex.

Considering the amount of television many people watch, television commercials seem to be an ideal way to promote products and services. In fact, advertisers will pay high prices for commercial airtime. For example, advertisers paid \$2.5 million to air a single 30-s advertisement during 2006 Super Bowl XL, a price that has doubled since 1996 (Lamothe, 2007).

Sex, Violence, and Commercial Memory

The goal of commercial advertising is to increase the likelihood that viewers will purchase the product or service advertised. Memory for advertisements is a critical factor in determining commercial effectiveness. According to Shimp and Gresham (1983), there are eight stages of advertising processing. Viewers are exposed to an advertisement (Stage 1), and they

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²Correspondence concerning this article should be addressed to Brad J. Bushman, Institute for Social Research, 426 Thompson Street, Ann Arbor, MI 48106. E-mail: bbushman@umich.edu

attend to it (Stage 2). They comprehend the message (Stage 3) and evaluate it (Stage 4). The advertising message is encoded into long-term memory (Stage 5) so that it can be retrieved later (Stage 6). After retrieval, individuals decide among all of the available options (Stage 7) and make a purchasing action (Stage 8). Note that memory is involved in half of the stages (Stages 1, 2, 5, and 6).

By the age of 65, the average person has seen approximately 2 million television commercials (Herr, 2001). It is not possible for individuals to remember all of those commercials, so advertisers seek to make their commercials memorable to the viewing audience (Harris, 1999). Advertisers are especially interested in making their commercials memorable to the most prized demographic; that is, younger viewers who are 18 to 34 years old. Advertisers believe that younger viewers are more susceptible to commercial influence because they have less established purchasing habits and more disposable income than do older viewers (Hamilton, 1998). Because valued younger viewers watch less television than do older viewers, advertisers sponsor television programs that younger viewers watch, such as programs that contain violence and sex (Hamilton, 1998).

However, research has suggested that advertising on violent or sexually explicit programs may backfire for advertisers. Violent and sexual television programming has been shown to impair commercial memory (Bushman, 2005; Bushman & Bonacci, 2002; Bushman & Phillips, 2001). Violent and sexual television programming might impair commercial memory because it diverts attention away from the ads. Individuals have a limited amount of attention to direct toward television programs (Lang, Newhagen, & Reeves, 1996). Research has suggested that individuals pay more attention to violent media than to nonviolent media (Furnham & Gunter, 1987; Lang et al., 1996; Williamson, Kosmitzki, & Kibler, 1995). Individuals also pay more attention to sexual media than to nonsexual media (Geer, Judice, & Jackson, 1994; Geer & McGlone, 1990; Geer & Melton, 1997). The more attention viewers pay to the violence and sex in television programs, the less attention they have available for the commercials embedded in those programs.

Sex and Violence in Advertising

In previous studies, most researchers have only tested memory for neutral ads, not for violent or sexual ads (for an exception see Gunter, Furnham, & Pappa, 2005). However, it is possible that both the content of the program and the content of the ads affect memory for commercial messages. One possibility is that people pay more attention to violent and sexual ads than to neutral ads, regardless of program content. A second possibility is that

people pay more attention to ads that match the content of the program (e.g., sexual commercials embedded in a sexual program). A third possibility is that people do not pay attention to ads in violent and sexual programs, regardless of the content of the ads.

Although research on violence in advertising is rare, research on sex in advertising is plentiful. Sexual appeals are a common message in modern advertising. Many advertisers assume that sex attracts attention and that this increased attention improves sales (Horowitz, 1987; Reichert & Lambiase, 1999; Trachtenberg, 1986). Consistent with advertisers' expectations, sexual ads do appeal to audiences (e.g., Belch, Belch, & Villareal, 1987; Bello, Pitts, & Etzel, 1983; Latour & Henthorne, 1994; Peterson & Kerin, 1977; Severn, Belch, & Belch, 1990; Simpson, Horton, & Brown, 1996). Despite the fact that sexual ads appeal to audiences, brand recall is poorer for sexual advertisements than for neutral advertisements, especially for women and for people who are uncomfortable with sex (Alden & Crowley, 1995; De Pelsmacker & Geuens, 1996; Jones, Stanaland, & Gelb, 1998).

It is possible that the congruence between program and commercial content affects commercial memory. For example, viewers might remember sexual advertisements better if they are embedded in a program with sexual content than in a program without sexual content. A handful of studies have examined how congruence between commercial content and program content affects commercial memory. However, the results are mixed (e.g., Furnham, Bergland, & Gunter, 2002; Furnham, Gunter, & Richardson, 2002; Sharma, 2000).

Why might program-commercial congruence improve commercial memory in some cases but not in others? Research has shown that the interaction between commercial involvement, program involvement, and viewer's involvement levels affect the relationship between program-commercial congruence and commercial memory (e.g., McClung, Park, & Sauer, 1985; Park & Mittal, 1985; Park & Young, 1983). For example, individuals might choose to watch a cognitively involving program (e.g., the news) to gain knowledge. The motive for selecting a particular program primes the individual throughout the entire program. Commercials that are consistent with this motive (e.g., cognitively involving commercials) should be easier to learn and to recall, whereas commercials that are inconsistent with this motive should be harder to learn and to recall (Park & Mittal, 1985; Seamon, Brody, & Kauff, 1983; Yi, 1990).

In addition to program and commercial involvement, viewer involvement is important. Researchers have suggested that program-commercial congruency is most effective when viewer involvement is moderate (McClung et al., 1985; Park & McClung, 1986). When viewer involvement is low, motivational priming is absent, and the congruency effect is eliminated. As viewer

involvement increases, motivational priming increases. This facilitates learning and recall of congruent commercials. However, when viewer involvement is extremely high, cognitive resources are overloaded and the congruency effect is eliminated.

More research is needed to address how program congruence affects memorability of sexual and violent commercials. Sexual and violent content is highly involving (e.g., Geer et al., 1994; Lang et al., 1996). Because participants are devoting most of their cognitive resources to processing the program, they may have fewer resources available for processing the commercials, thus eliminating the congruency effect.

The Present Study

The present study has two major purposes: (1) to test the memorability of sexual and violent television commercials relative to neutral content commercials; and (2) to test whether embedding a sexual or violent commercial in a content-similar program affects commercial memory. Participants watched a violent, sexual, or neutral television program. Embedded in each program were three sexual commercials, three violent commercials, and three neutral commercials. After rating the TV program, participants were given a surprise brand-recall test. Sexual and violent TV programs were expected to impair commercial memory. Because sexual and violent TV programs are highly involving and absorb attention, a program-commercial congruency effect is not expected. Instead, the expectation is that televised violence and sex will impair memory for all types of commercials.

Method

Participants

Participants were 324 undergraduate students (162 men, 162 women). They received extra course credit in exchange for their voluntary participation.

Design

A mixed design was used, with factors of television content (violent, sexual, neutral), ad content (violent, sexual, neutral), and participant gender.

The television content and participant gender factors were between-subjects factors, whereas the ad content factor was a within-subjects factor.

Procedure

Participants were tested individually. They were told that the purpose of the study was to evaluate television programs. After giving their informed consent, participants were assigned randomly to watch a violent, sexually explicit, or neutral television program. To be sure that we adequately sampled the program types, we used six exemplars of each program type (Wells & Windschitl, 1999). Once participants were randomly assigned to watch a violent, sexual, or neutral program, a die was rolled to determine what specific program they watched.

The six violent programs were "La Femme Nikita," "Martial Law," "Toughman," "World Wrestling Federation—Monday Night Nitro," "Tour of Duty," and "Millennium." All of the violent programs had a violent (V) content code; while none had a sex (S) content code. The six sexually explicit programs were "Strip Poker," "X-Show," "Howard Stern," "Son of the Beach," "Man Show," and "Strip Mall." All of the sexual programs had a sex (S) content code; while none had a violent (V) content code. All violent and sexual programs were rated TV-14 (i.e., "Parents Strongly Cautioned"). The six neutral programs were "Encounters With Unexplained," "It's a Miracle," "Mysterious Ways," "Miracle Pets," "Candid Camera," and "Doc." None of the neutral programs had violent (V) or sex (S) content codes. All of the neutral programs were rated TV-G (i.e., "General Audience"). All programs were 40 to 45 min long and were taped from cable television channels.

The ads that were originally embedded in the program were edited out. There were commercial breaks at approximately 12 min, 24 min, and 36 min into each program, with three ads per break. Thus, each participant saw ads for nine products. In each break, there was a violent ad, a sexual ad, and a neutral ad. A Latin-square design was used to determine the order of ads within each break.

The nine products were 1-800-COLLECT, Budweiser, Levi's, M&M's, Mountain Dew, Nike, Pepsi, Pringles, and Snickers. All of the products had broad market appeal. For each product (e.g., Mountain Dew), there was a violent ad, a sexual ad, and a neutral ad. Thus, there were 27 ads in all. Participants only saw one type of ad for each product (e.g., if they saw the violent Mountain Dew ad, they did not see the sexual or neutral Mountain Dew ads). For example, one participant might see a violent 1-800-COLLECT ad, a sexual Budweiser ad, and a neutral Levi's ad in the first commercial break; a sexual M&M's ad, a neutral Mountain Dew ad, and a violent Nike

ad in the second commercial break; and a neutral Pepsi ad, a violent Pringles ad, and a sexual Snickers ad in the third commercial break.

Immediately after viewing the videotape, participants rated how *absorbing*, *action-packed*, *arousing*, *boring*, *enjoyable*, *entertaining*, *exciting*, *involving*, *violent*, and *sexually explicit* they thought the TV program was. The ratings were made on a 10-point scale ranging from 1 (*not at all*) to 10 (*extremely*). Violence ratings were expected to be higher for violent programs than for sexual and neutral programs. Sexually arousing ratings were expected to be higher for sexual programs than for violent and neutral programs. The other ratings were used as possible covariates to control for differences among programs other than how violent and sexual they were.

Next, participants were given a surprise free-recall test. They were told to recall the names of the nine brands in the ads in any order they wanted.

To control for habitual exposure to televised violence and sex, participants reported the number of hours each week they spend watching TV, and the percentage of time they spend watching violent and sexual programs. To control for previous exposure to the TV programs and ads, participants also reported if they had seen the program and ads before. Finally, participants were debriefed.

Results

Preliminary Analyses

Gender differences. There were no main effects or interactions involving participant gender on any measure (i.e., memory, TV program ratings, ad ratings; $ps > .05$). Thus, the data were collapsed across participant gender for subsequent analyses.

TV program content. As expected, violence ratings were influenced by program content, $F(2, 321) = 140.15$, $p < .0001$. Violence ratings were higher for violent programs ($M = 6.59$) than for sexual programs ($M = 2.53$) and neutral programs ($M = 2.34$): $t(321) = 14.81$, $p < .0001$ ($r_{pb} = .63$); and $t(321) = 14.17$, $p < .0001$ ($r_{pb} = .62$), for sexual and neutral programs, respectively. Violence ratings did not differ for sexual programs and neutral programs, $t(321) = 0.65$, $p > .05$ ($r_{pb} = .03$).

As expected, sexual ratings were influenced by program content, $F(2, 321) = 250.49$, $p < .0001$. Sexual ratings were higher for sexual programs ($M = 7.33$) than for violent programs ($M = 3.28$) and neutral programs ($M = 1.21$): $t(321) = 14.58$, $p < .0001$ ($r_{pb} = .63$); and $t(321) = 22.00$, $p < .0001$ ($r_{pb} = .77$), for violent and neutral programs, respectively. Sexual ratings were also higher for violent programs than for neutral programs, $t(321) = 7.42$,

$p < .0001$ ($r_{pb} = .38$). The latter difference was probably a result of the small amount of sexual content in some of the violent TV programs. For example, in "World Wrestling Federation—Monday Night Nitro," there was a female wrestler in a bikini. There was no sexual content in any of the neutral TV programs.

Ad content. A separate group of 122 undergraduate students (57 men, 65 women) rated the ads on the same dimensions as the TV programs. As expected, violence ratings were influenced by ad content, $F(2, 120) = 226.85$, $p < .0001$, Wilks's $\Lambda = 0.21$. Violence ratings were higher for violent ads ($M = 4.03$) than for sexual ads ($M = 1.51$) and neutral ads ($M = 1.41$): $t(121) = 20.33$, $p < .0001$ ($r_{pb} = .68$); and $t(121) = 20.94$, $p < .0001$ ($r_{pb} = .69$), for sexual and neutral ads, respectively. Violence ratings did not differ for sexual ads and neutral ads, $t(121) = 1.68$, $p > .05$ ($r_{pb} = .07$).

As expected, sexual ratings were influenced by ad content, $F(2, 120) = 117.56$, $p < .0001$, Wilks's $\Lambda = 0.34$. Sexual ratings were higher for sexual ads ($M = 3.86$) than for violent ads ($M = 1.76$) and neutral ads ($M = 1.28$): $t(121) = 12.91$, $p < .0001$ ($r_{pb} = .50$); and $t(121) = 15.31$, $p < .0001$ ($r_{pb} = .57$), for violent and neutral ads, respectively. Sexual ratings were also higher for violent ads than for neutral ads, $t(121) = 6.27$, $p < .0001$ ($r_{pb} = .27$). As with TV programs, there was a small amount of sex in some of the violent ads. For example, in one violent ad for jeans, a very attractive woman was fighting and blew up a car.

Differences among exemplars of different types of TV programs. To make the findings more generalizable, we used six exemplars of each program type. There were no significant differences among the six violent programs, among the six sexual programs, or among the six nonviolent programs on memory ($ps > .05$). In addition, there were no significant interactions between program type and ad type ($ps > .05$). Thus, the data were collapsed across exemplars of program types for subsequent analyses.

Differences among exemplars of different types of TV ads. To make the findings more generalizable, we used nine exemplars of each type of TV ad. There were no significant differences among the nine violent ads, among the nine sexual ads, and among the nine nonviolent ads on memory ($ps > .05$). In addition, there were no significant interactions between program type and ad type ($ps > .05$). Thus, the data were collapsed across exemplars of ad types for subsequent analyses.

Primary Analyses

The data were analyzed using a 3 (TV Program Content: violent, sexual, neutral) \times 3 (TV Ad Content: violent, sexual, neutral) MANOVA. Depen-

dent variables were the number of brands in violent ads recalled, the number of brands in sexual ads recalled, and the number of brands in neutral ads recalled. Similar results were obtained when the data were analyzed using hierarchical linear modeling (HLM).³

As expected, type of program significantly influenced brand recall, $F(2, 321) = 4.82$, $p < .01$ ($MSE = 0.77$; see Table 1). Brand recall was 17% higher for participants who saw a neutral program than for participants who saw a violent program, $t(318) = 2.46$, $p < .05$ ($r_{pb} = .14$). Brand recall was 21% higher for participants who saw a neutral program than for participants who saw a sexual program, $t(318) = 2.87$, $p < .005$ ($r_{pb} = .16$). Brand recall did not differ for participants who saw the violent and sexual programs, $t(318) = 0.40$, $p > .05$ ($r_{pb} = .02$). Similar results were obtained when covariates were included in the model (see Table 1).

There was a main effect for type of ad, $F(2, 320) = 5.44$, $p < .005$, Wilks's $\Lambda = .97$. The violent ads were 20% less memorable than were the sexual ads ($M_s = 0.92$ and 1.10 , for violent and sexual ads, respectively), $t(323) = -2.89$, $p < .005$ ($r_{pb} = -.11$). The violent ads were 18% less memorable than were the neutral ads ($M_s = 0.92$ and 1.09 , for violent and neutral ads, respectively), $t(323) = -2.82$, $p < .01$ ($r_{pb} = -.11$). Memory for the sexual ads and the neutral ads did not differ, $t(323) = 0.10$, $p > .05$ ($r_{pb} = .003$). These memory differences cannot be attributed to brand familiarity, because brand was held constant across type of ad: There was a violent ad, a sexual ad, and a neutral ad for each brand (e.g., Mountain Dew).

³HLM is used primarily for multilevel data analysis. Two indicator variables were used for the categorical variable: type of TV program. One indicator variable was coded 1 for violent TV programs, and 0 for sexual and neutral TV programs. The other indicator variable was coded 1 for sexual TV programs, and 0 for violent and neutral TV programs. Thus, the neutral TV program provided the baseline (it was coded 0 for both indicator variables). Type of ad was coded the same way. The indicators for type of program were constant for a participant (Level 2), whereas the indicators for type of ad changed within a participant (Level 1). A binomial response distribution was used for the number of brands recalled, with the number of possible trials always equal to 9. In the HLM analyses, type of TV program did not interact with type of ad to influence brand recall ($ps > .20$), so interaction terms were excluded from subsequent models. In the HLM model without covariates, the odds of recalling an advertised brand were reduced 22% if the ad was embedded in a violent TV program, $t(321) = -2.36$, $p < .02$, odds ratio = 0.78. Similarly, the odds of recalling an advertised brand were reduced 25% if the ad was embedded in a sexual TV program, $t(321) = -2.74$, $p < .007$, odds ratio = 0.75. Also, the odds of recalling an advertised brand were reduced 23% if the ad was violent, $t(967) = -2.83$, $p < .005$, odds ratio = 0.77. Sexual ads did not significantly influence recall, $t(967) = 0.10$, $p > .90$, odds ratio = 1.01. Similar effects were obtained when covariates were included in the HLM model. The odds of recalling an advertised brand were reduced 21% if the ad was embedded in a violent TV program, $t(307) = -2.06$, $p < .04$, odds ratio = 0.79. Similarly, the odds of recalling an advertised brand were reduced 29% if the ad was embedded in a sexual TV program, $t(307) = -3.05$, $p < .003$, odds ratio = 0.71. Also, the odds of recalling an advertised brand were reduced 23% if the ad was violent, $t(953) = -2.82$, $p < .005$, odds ratio = 0.77. Sexual ads did not significantly influence recall, $t(953) = 0.10$, $p > .90$, odds ratio = 1.01.

Table 1

Effects of Violence and Sex on Memory for Advertisements

	Unadjusted means		Adjusted means	
	<i>M</i>	<i>SE</i>	<i>M</i>	<i>SE</i>
Violent program	2.97 _b	0.15	3.01 _b	0.17
Sexual program	2.89 _b	0.15	2.82 _b	0.16
Neutral program	3.48 _a	0.15	3.50 _a	0.17

Note. $n = 108$ participants in each group. Scores could range from 0 (no brands remembered) to 9 (all brands remembered). Unadjusted means were not adjusted for any covariates. Adjusted means were adjusted for the following covariates: whether participants had seen the TV program and commercials before; absorbing, action-packed, arousing, boring, enjoyable, entertaining, exciting, and involving ratings for the TV program; hours spent watching TV per week; and habitual exposure to televised sex and violence. Means sharing the same subscript are not significantly different at the .05 level.

Type of program did not interact with type of ad to influence memory for ads, $F(4, 640) = 0.73, p > .05$, Wilks's $\Lambda = .99$. Thus, televised violence and sex impaired memory for all three types of ads (i.e., violent, sexual, and neutral).

Discussion

The current study examined the effects of television program content and commercial content on commercial memory. Consistent with past research, brand recall was higher for participants who saw a neutral TV program than for participants who saw a violent or sexual TV program. Brand recall did not differ for participants who saw the violent and sexual TV programs. Moreover, there was no interaction between TV program content and commercial content on memory. Violent ads were not more memorable when embedded in a violent program; sexual ads were not more memorable when embedded in a sexual program. Overall, violent ads were the least memorable.

The current study assessed the effectiveness of sexual and violent advertising on brand recall. There are three possibilities for the effectiveness of sexual and violent advertising: (a) sexual and violent advertising increases commercial memory, regardless of TV program content; (b) sexual and violent advertising increases commercial memory when the commercials are congruent with the TV program content; or (c) sexual and violent TV pro-

grams decrease commercial memory, regardless of advertising content. The data did not support the first two possible outcomes, but did support the third outcome.

The current study is important because it shows that violent and sexual programs impair commercial memory, regardless of commercial content. However this study, like all studies, has limitations. Participants in this study did not select the type of show that they watched. One possibility is that deliberately choosing to watch a violent or sexual program may facilitate the congruency effect. Individuals choose to watch shows for particular reasons (Park & Mittal, 1985). For example, they may watch a comedy because they want to feel happy. The motives underlying the choice of a particular program create a unique cognitive state that primes individuals while they watch the program (Seamon et al., 1983; Yi, 1990). Because participants in our study did not choose to watch the program they saw, motivation levels could have been low. The lack of a motive prime might explain the lack of a congruency effect. Future research should examine if choice of programming affects congruency effects. Perhaps individuals who choose to watch a violent or sexual program create a cognitive state primed to learn and remember violent or sexual programming, respectively.

Another limitation of the present study is that participants watched the television programs in a laboratory setting with minimal distractions. Therefore, people might have attended more to the programs in this setting than under normal viewing conditions. However, it should be noted that similar results have been obtained in other studies conducted in more natural settings (Bushman, 2005; Bushman & Bonacci, 2002).

The results of this study suggest that violent and sexual commercials are not more memorable than are neutral commercials, at least not in a laboratory setting. Variations in mood between encoding and retrieval might explain this effect. State-dependent memory theories argue that memory will be the best when the retrieval state (e.g., mood) matches the state in which the information was encoded (Eich, Kihlstrom, Bower, Forges, & Niedenthal, 2000). That is, individuals should show the best commercial memory when their retrieval mood matches the mood they were in when they watched the commercial. Watching sexual programming might elicit a particular mood (e.g., sexual arousal, anxiety), as would watching violent programming (e.g., anger, excitement). It seems likely that participants taking a memory test or customers shopping in a store would be in a different mood state than when they encoded the commercial. Perhaps if participants were sexually aroused while taking the memory test, they might show better memory for sexual commercials, as opposed to violent or neutral commercials. Future research should manipulate congruence in mood between commercial learning and recall to test this hypothesis.

Sexual and violent programming might impair commercial memory because they consume attention and limit the cognitive resources available for commercial processing. However, the present study did not include measures to test this assertion. For example, one could include measures assessing memory of program details. If participants are more involved in sexual and violent programming, they might remember more details from sexual and violent programs than from neutral programs.

Advertisers are increasing the amount of sexual and violent images in ads to capture viewers' attention. However, advertisers' intentions might not work. The results of the current study suggest that sexual and violent commercials are not more memorable than are neutral commercials. Moreover, congruence between program and commercial content does not facilitate commercial memory. If the goal of advertising is to get viewers to remember their products and to purchase them, advertisers might want to invest their money in developing nonsexual, nonviolent commercials and showing them in nonsexual, nonviolent TV programs.

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